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Claims

1. Circuitry for signal measurement comprising:

a signal input,

a microprocessor, and

an oscillator,

said oscillator being operable to generate a pulse signal, the frequency of which is a function of amplitude of a first signal received at said signal input, and to supply said pulse signal to said microprocessor,

and said microprocessor being operable to measure the frequency of said pulse signal by comparing the pulse signal with a timing signal, thereby providing an indication of the amplitude of said first signal.

2. Circuitry according to claim 1 wherein said timing signal is in the form of a timing window.

3. Circuitry according to claim 1, wherein said pulse signal comprises pulses which are countable by a counter, said counter being connected to said microprocessor to give an indication to said microprocessor that a given number of pulses has been counted.

4. Circuitry according to claim 1, wherein said pulse signal is connected directly to said microprocessor.

5. Circuitry according to claim 1, wherein said pulse signal is supplied to a clock input of said microprocessor.

6. Circuitry according to claim 1 and also comprising:

a timer,

wherein an output of said timer comprises said timing signal.

7. Circuitry according to claim 2, wherein said microprocessor is operative to count said pulse signal over said timing window.

8. Circuitry according to claim 5, wherein said clock input is an external clock input.

9. Circuitry according to claim 1, wherein said oscillator is wholly external to said microprocessor.

10. Circuitry according to claim 1, wherein said oscillator utilizes internal features of said microprocessor.

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11. Circuitry according to claim 1, wherein said signal input is an analog signal.

12. Circuitry according to claim 1, wherein said signal input is a digital signal.

13. Circuitry for signal measurement comprising:

a signal input, a microprocessor and a clock oscillator circuit operable to generate a clock signal for said microprocessor, wherein the frequency of pulses of said microprocessor clock signal is variable as a function of the amplitude of a signal received at said signal input, and

said microprocessor is operable to process the clock signal and to provide an output indication of the amplitude of said signal received at said signal input.

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14. Circuitry according to claim 13, further comprising a timer operable to define a pulse counting time duration for counting a plurality of said clock pulses, and wherein said timer is further usable by said microprocessor in processing said signal.

15. Circuitry according to claim 14, wherein said microprocessor is operable to count a plurality of pulses over said time duration.

16. Circuitry according to claim 6, wherein said timer comprises a capacitor-based circuit.

17. Circuitry according to claim 14, wherein said timer comprises a capacitor-based circuit.

18. Circuitry according to claim 6, wherein said timer is connectable to utilize an I/O port of said microprocessor.

19. Circuitry according to claim 14, wherein said timer is connectable to utilize an I/O port of said microprocessor.

20. Circuitry according to claim 13, wherein said clock oscillator circuit utilizes a microprocessor built-in clock circuit.

21. Circuitry according to claim 13, wherein said oscillator is wholly external to said microprocessor.

22. Circuitry according to claim 13, wherein said signal received at said signal input is an analog signal.

23. Circuitry according to claim 13, wherein said signal received at said signal input is a digital signal.

24. Circuitry according to claim 13, wherein said signal received at said signal input is produced by a sensor.

25. Circuitry according to claim 24, wherein said sensor is part of a security system.

26. Circuitry according to claim 24, wherein said sensor is an infra-red sensor.

27. Circuitry according to claim 24, wherein said sensor is a pyroelectric sensor.

28. Circuitry according to claim 24, wherein said sensor is connected to said clock oscillator circuit via an interface circuit.

29. Circuitry according to claim 28 wherein said interface circuit is operable to perform buffering.

30. Circuitry according to claim 29 wherein said interface circuit is operable to perform amplification.

31. Circuitry according to claim 1, operable to measure signals from sensors by converting amplitudes of said signals into a frequency and making a measurement of the frequency.

32. Circuitry according to claim 13, operable to measure signals from sensors by converting amplitudes of said signals into a frequency and making a measurement of the frequency.

33. Circuitry for signal measurement comprising an input for receiving a signal having a varying amplitude from a sensor, a converter for converting said varying amplitude into a varying frequency, and a measuring device operable to determine parameters of the sensor signal by measurement of variations in the frequency.

34. A detection apparatus comprising:
a sensor providing sensor signal output, a microprocessor, and a clock oscillator circuit generating a clock signal for said microprocessor, wherein the frequency of said microprocessor clock signal varies as a function of the amplitude of said sensor signal, and said microprocessor processes the clock signal and provides a detection indication when said sensor signal fulfils certain criteria.

35. A detection apparatus according to claim 34 further comprising a timer operable to define a pulse counting interval for counting a plurality of said clock pulses, and wherein said timer is usable by said microprocessor in processing the signal.

36. A detection apparatus according to claim 35 wherein said microprocessor is operable to count said plurality of pulses over said time duration.

37. A detection apparatus according to claim 35, wherein said timer comprises a capacitor-based circuit.

38. A detection apparatus according to claim 35, wherein said timer utilizes an I/O port of said microprocessor.

39. A detection apparatus according to claim 34, wherein said clock oscillator is external to said microprocessor.

40. A detection apparatus according to claim 34, wherein said clock oscillator utilizes the microprocessor built-in clock circuit.

41. A detection apparatus according to claim 34, wherein said sensor signal is an analog signal.

42. A detection apparatus according to claim 34, wherein said sensor signal is a digital signal.

43. A detection apparatus according to claim 34, when used for intrusion prevention.

44. A detection apparatus according to claim 34, when used for theft prevention.

45. A detection apparatus according to claim 34, when used for lighting control.

46. A detection apparatus according to claim 34, when used for vibration sensing.

47. A detection apparatus according to claim 34, when used for shock sensing.

48. A detection apparatus according to claim 34, when used for displacement sensing.

49. A detection apparatus according to claim 34, wherein said sensor is any one of a group comprising an infra-red sensor, a quad-element infrared sensor, an acoustic sensor, an infrasonic sensor, an ultrasonic sensor, a photoelectric sensor, an electromagnetic field sensor, a temperature sensor, and a smoke-detecting sensor.

50. A detection apparatus according to claim 49, comprising a second sensor, and wherein said second sensor is any one of a group comprising an infra-red sensor, a quad-element infrared sensor, an acoustic sensor, an infrasonic sensor, an ultrasonic sensor, a photoelectric sensor, an electromagnetic field sensor, a temperature sensor, and a smoke-detecting sensor.

51. A method for signal measurement comprising:

providing a first signal to an oscillator circuit operable to generate a clock signal for a microprocessor, wherein the frequency of said clock signal is variable as a function of the amplitude of said first signal, and said microprocessor is operable to process the clock signal and to provide an output indication of the amplitude of said first signal.